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REMARKS/ARGUMENTS

Claims 1-33 are pending in this application, and all pending claims are cancelled. Claims 1, 15, 17, 23, 31, and 33 are amended. Further consideration of this application is respectfully requested in view of the above amendments to the claims and remarks set forth below.

Claim 15 has been amended only to correct informalities.

Claims 1 and 9-33 stand rejected under 35 USC 102(b) as being anticipated by Kim et al (US Patent No. 5,877,653). The rejection of claims 1 and 9-33, as amended, under 35 USC 102(b) is respectfully traversed.

In response to the rejection of the claims under 35 USC 102(b), independent claims 1, 17, 23, 31, and 33 have been further amended to clearly distinguish over the teachings of Kim et al. In particular, claims 1, 17, 23, and 33 all recite a "differential" spurious ratio circuit or method, which is supported by an inspection of the circuit shown in FIG. 5 and the teachings of paragraph [0051] of the original application. Claim 31 has been similarly amended, and has also been amended to more properly conform to drawing FIG. 7. No new matter has been introduced into amended claims 1, 17, 23, 31, or 33.

Kim et al does not teach a spurious-to-spurious signal ratio (differential spurious ratio) as now claimed. Instead, Kim et al teaches the use of a multiplexer to selectively and iteratively measure receive signal strength (RSSI) of IMD signal levels from selective test points (Col 6, lines 37-41). Furthermore, Kim et al teaches that selected RSSI signal levels are measured individually and thereafter a controller analyzes the value of the selected RSSI signal levels and generates appropriate attenuation and phase control signals (Col 6, line 52-58). Once the level of the RSSI intermodulation signal has been measured Kim et al teaches that the measured signal level should be

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compared with the previously measured level of the same signal (Col 17, line 10-14). If individual RSSI levels for IM1 to IM4 are greater than of the previous state values then appropriate attenuators and phase shifters are utilized to minimize the RSSI intermodulation signal (Col 21, line 34-40).

In contrast to the teachings of Kim et al, the present invention as claimed performs an instantaneous differential spurious signal ratio (spurious-to-spurious signal) measurement between different monitoring points within a feed-forward amplifier, while addressing dynamic range measurement limitations inherent with direct RSSI intermodulation signal measurement (see ratio circuit 254 shown in FIG. 2 of the present application.)

Kim et al provides reduced performance capability compared to the spurious-to-spurious signal differential ratio approach of the present invention performed by spurious-to-spurious ratio circuit 254 shown in FIG. 2. Kim et al does not teach the present invention as claimed, and in fact teaches away from apparatus and method as claimed in the present invention.

For the reasons given above, claims 1, 17, 23, 31, and 33 are deemed to be patentable over Kim et al, and allowable under 35 USC 102(b). The remaining dependent claims are deemed to be allowable as being dependent upon an allowable base claim.

Claims 23-30 and 33 stand rejected under 35 USC 103(a) as being unpatentable over Kim et al, and further in view of Hassun et al (US Patent No. 6,263,289). The above rejection under 35 USC 103(a) is respectfully traversed.

Hassun et al requires an extensive alignment procedure (Col 6, line 30 to Col 7, line 12). Such a measurement procedure is suitable for external DUT measurements involving electrical signals delays that are very large and require substantial delay lines on the order of 16 meters of transmission line

(Col 5, lines 30-31). Inclusion of such long delay lines into an already compact feed-forward power amplifier is expensive and size prohibitive. Hence, there is no motivation to combine the teachings of Kim et al and Hassun et al.

Furthermore, the hypothetical combination of Hassun et al and Kim et al, as best as can be understood, is inoperable without extensive modifications. A switching system for selecting different delays would be required for delay path equalization between various measurement points within feed-forward power amplifier in order to perform noise power ratio measurements as suggested by Hassun (Col 5, 44-45). The present invention does not use group delay equalization as required by Hassun in order to perform differential spurious signal ratio measurement. In contrast to the broadband (20 MHz) measurement technique taught by Hassun, the present invention utilizes narrowband synchronous receivers to form a differential signal ratio control signals in order to control feed-forward amplifier operating parameters as to achieve adequate IMD suppression. Narrowband synchronous receivers used in the present invention do not require precise input signal group delay equalization as taught by Hassun.

In sum, there is no motivation to combine the teachings of Kim et al and Hassun et al. The hypothetical combination of Kim et al and Hassun et al would be inoperable without extensive modifications. Further, the Kim et al and Hassun et al references teach standalone techniques that have no need of selective parts of the one grafted on to the other. In addition, there is no suggestion in the references, and none provided by the Examiner, of exactly how the various components of the references should be combined to achieve the invention as claimed.

For these reasons, claims 23 and 33 are deemed to be patentable over the combination of Kim et al and Hassun et al, and allowable under 35 USC

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103(a). The remaining dependent claims are deemed to be allowable as being dependent upon an allowable base claim.

Claims 31 and 32 stand rejected under 35 USC 103(a) as being unpatentable over Kim et al, and further in view of Hassun et al (US Patent No. 6,263,289). The above rejection under 35 USC 103(a) is respectfully traversed.

With respect to Kim et al, if the spurious ratio is to be formed between signals coupled from coupler 232 and coupler 233, as is suggested by the Examiner, the resulting spurious signal ratio would be a constant value regardless of predistorter control values (ATT3 & PIC3). It is obvious to the one skilled in the art that there is no relative change in spurious signal levels (or IMD's) between the 232 and 233 couplers. The only difference between the coupled signals from the 232 and 233 couplers is that a signal coupled from coupler 232 contains amplified carriers and the same amplified carriers are cancelled by summing junction 219 and thus the carrier cancelled signal is coupled by coupler 233. With amplified carrier signals being cancelled, spurious signals (or IMD's) signals are unaffected by carrier cancellation junction 219. Monitoring the output of the predistorter spurious signals results in an operable differential spurious ratio control system.

Thus, the suggested modification to Kim et al is inoperable, and the rejection of claims 31 and 32 is respectfully requested to be withdrawn. As the rejection under 35 USC 103(a) is not deemed to be proper, claims 31 and 32 are deemed to be allowable over the combination of Kim et al in view of Hassun et al and allowable under 35 USC 103(a).

Claims 2-8 stand rejected under 35 USC 103(a) as being unpatentable over Kim et al and further in view of admitted prior art. The rejection of claims 2-8 under 35 USC 103(a) is respectfully traversed. Claims 2-8 are deemed to

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be allowable as being dependent upon allowable base claim 1, for the reasons given above.

In view of all of the above, claims 1-33 are now believed to be allowable and the case in condition for allowance which action is respectfully requested. Should the Examiner be of the opinion that a telephone conference would expedite the prosecution of this case, the Examiner is requested to contact Applicants' attorney at the telephone number listed below.

No fee is believed due for this submittal. However, any fee deficiency associated with this submittal may be charged to Deposit Account No. 50-1123.

Respectfully submitted,

_10/17_____, 20_05_

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